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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,269	07/06/2000	Dennis Bushmitch	MATI-193US	5547

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P O BOX 980  
VALLEY FORGE, PA 19482-0980

EXAMINER

SEFCHECK, GREGORY B

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 06/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/610,269

Applicant(s)

BUSHMITCH ET AL. 

Examiner

Gregory B Sefcheck

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-16 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

- Applicant's Request for Continued Examination filed 4/15/2004 is acknowledged.
- Claims 1-17 are pending.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- In regards to Claim 17,

The specification does not clearly describe how the measurement-based dynamic UGPRS unsolicited channel allocation is calculated. Referring to Fig. 9, step 8, it is not sufficiently described how both the increase and decrease constants obtained in steps 6 and 7 are used in calculating the new UGS grant size. It is not clearly described how the UGS average rate is both decreased and increased at the same time in order to calculate a new UGS grant size.

Art Unit: 2662

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (US005751708A) in view of Surazski et al. (), hereafter Surazski.

- In regards to Claims 1, 4, and 5,

Eng discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of allocated grants sent downstream to the remote unit by the system controller (Abstract; Col. 2, lines 17-35; claim 1 – method of transmitting packets upstream from a remote unit to a system controller through allocated grants sent downstream from the controller to the remote unit).

By checking the end-user device's buffer for additional data (Col. 2, lines 1-8), Eng shows that the end-user device determines whether the bandwidth size of the data to be transmitted is greater than the size of the periodically allocated grant (claim 1 - determine bandwidth size of data and allocation; determine whether the data bandwidth size is greater than the allocated transmission grant).

Art Unit: 2662

If so, a piggyback request for a dynamically allocated grant is transmitted along with the first portion of the data (Col. 5, lines 15-24) in the original allocated grant (claim 1 - transmit first portion of data along with a request; claim 5 – first portion is less than allocated grant).

The request for a dynamically allocated grant communicates the size of the data remaining in the buffer (Col. 7, lines 27-30; claim 1 - request a dynamic grant equivalent to the size of the remaining data portion), so the transmission of that remaining portion of data can be completed in response to the allocation request (Col. 2, lines 28; claim 1/4 - transmit the remaining data at the requested or next grant).

Eng does not disclose individually unsolicited periodically allocated grants sent downstream from the controller to a remote unit for scheduling the upstream data packet transmissions.

Surazski discloses a method of allocating bandwidth for transmitting upstream cells from a CPE unit to a BTS (Abstract). Surazski discloses that these upstream transmissions are scheduled through individually unsolicited periodically allocated grants sent from the BTS on the downstream channel to each CPE unit (Figs. 2 and 9; Col. 3, lines 57-60; Col. 14-15, lines 39-40; claim 1 – individually unsolicited periodically allocated grants sent from controller to remote unit for scheduling upstream transmissions).

Art Unit: 2662

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Eng by utilizing individually unsolicited periodic grants for allocating upstream transmission bandwidth to remote units, as shown by Surazski. This modification would increase bandwidth utilization by reducing the need to request transmission access to only those instances where the data for transmission exceeds the size of the unsolicited periodic transmission grants.

- In regards to Claim 2,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Eng shows an iterative method that can determine if the bandwidth of the remaining portion of the first data packet plus any subsequent data is greater than the next allocated grant by checking the end-device's buffer for additional data (Col. 6, lines 31-35; claim 2 - determine if the combined size of remaining data and new data is greater than the size of the next grant)

If so, a request for a further dynamically allocated grant is sent along with the next allocated grant, containing the remaining data portion of the first packet and a first portion of the subsequent data. (Col. 6, lines 31-35; claim 2 - transmitting at least the remaining portion of data; requesting a further

Art Unit: 2662

dynamically allocated grant along with the transmission; transmitting the remaining portion of the subsequent packet in response to the next available grant).

- In regards to Claim 3,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Eng shows that the data packets to be transmitted are stored in a buffer, with transmission bandwidth requirements being determined by comparing the contents of the buffer to a threshold value (a threshold value of 0 – empty buffer; Col. 4, lines 56-60; Col. 6, lines 26-35; claim 3 - bandwidth size of packets determined by storing in a buffer and comparing the buffer to a threshold).

- In regards to Claim 8,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Art Unit: 2662

The method of Eng can be applied to a cable distribution system network for transmission of packets to and from end-user devices. (Col. 3, lines 22-25; network is data over cable system interface compliant)

- In regards to Claim 9,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller/scheduler through the use of individually unsolicited periodically allocated grants sent downstream to the remote unit by the system controller that covers all limitations of the parent claim.

Eng discloses that the piggybacked request is transmitted in a designated slot (header) within the allocated grant. (Fig 3 and 6A; Col. 5, lines 15-24; claim 9 – request resides in an extended header of the first transmission)

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng in view of Surazski further in view of Lakshman (US006269078B1).

- In regards to Claims 6 and 7,

Eng v. Surazski discloses a method of transmitting data packets from an end-user device or remote terminal to a common system controller through the use of periodically allocated grants by the common system controller in order to maximize bandwidth utilization and minimize latency of transmission. Eng v.



Art Unit: 2662

Surazski further discloses the end-user device determining whether the bandwidth size of the data to be transmitted is greater than the size of the periodically allocated grant, and if so, transmits the first portion of the data in the periodically allocated grant along with a request for a dynamically allocated grant, so that the remaining portion of the data transmission can be completed in response to a next available grant. (Eng - Fig. 1B and 5; Col. 5, lines 15-24).

Eng v. Surazski does not expressly state that the data being transmitted are compressed video data packets, such as those pursuant to the motion picture experts group standard (MPEG).

Lakshman et al. show a method comprising a remote terminal being granted transmission requests based on the bandwidth size of data packets of variable-rate compressed video, such as MPEG video streams (referenced throughout Specification) from an end-user encoder or remote terminal to a common network or system controller (claim 6 – packet data is variable-rate compressed video data; claim 7 – video is MPEG).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the method of Eng v. Surazski by applying the method to the transport of variable-rate compressed video data, such as MPEG video, as taught by Lakshman, thereby satisfying MPEG compressed video's need for low latency transmission while maintaining high bandwidth utilization.

Art Unit: 2662

***Allowable Subject Matter***

6. Claims 10-16 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or fairly suggest a method, as specified in independent Claim 10, of transmitting variable bit-rate data packets that exceed the bandwidth size of a periodic grant comprising:

- Decomposing a variable bit-rate packet into a constant bit-rate (CBR) portion and a variable bit-rate (VBR) portion.
- Transmitting the CBR portion along with a request for a dynamically allocated grant equal to the size of the VBR portion
- Transmitting the VBR portion in response to the next available grant

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

9. The amendment filed 11/13/2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

Art Unit: 2662

- On pg. 11 of the Amendment filed 11/13/2003, the Applicant expands the definition of pg. 13, lines 1-16 of the originally-filed specification, regarding Step 8 of Fig. 9, which calculates a New UGS grant size.

By disclosing that the "UGS grant size is increased when the value of step 7 exceeds the value in step 6" and, similarly, that the "UGS grant size is decreased when step 6 value exceeds the step 7 value", the Applicant introduces new matter to the original specification, which only discloses that the increase/decrease constants in steps 6 and 7 control how fast the allocation tracks changes in the dynamic bandwidth requirements. The original specification contains no explanation of how the constants and values of steps 6 and 7 contribute to the calculation in step 8.

- The above objection to the Amendment filed 11/13/2003 has been included in this Office Action because the Applicant failed to address the objection in response to the Final Office Action, filed 12/15/2003, where the objection was originally identified.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Raissinia et al. (US006594251B1) discloses polling for transmission power control
- Lee et al. (US006529520B1) discloses a method and device for bandwidth allocation in multiple access protocols with contention-based reservation
- Yin et al. (US006490251B2) discloses a method and apparatus for communicating congestion information among different protocol layers between networks
- Fan et al. (US006408005B1) discloses a dynamic rate control scheduler for ATM networks
- Bauchot (US005970062A) discloses a method and apparatus for providing wireless access to an ATM network
- Ben-Nun et al. (US005649110A) discloses a traffic shaping system with virtual circuit table time stamps for asynchronous transfer mode networks
- Clarkson et al. (US005559798A) discloses data segmentation within a renegotiated bit-rate service transmission system

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone

Art Unit: 2662

number is 703-305-0633. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS  
6-21-2004

  
HASSAN KIZOU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600